

REMARKS/ARGUMENTS

This paper is being provided in response to the Final Office Action dated October 25, 2006 for the above-referenced application. In this response, Applicant has amended Claims 1, 22, 29, 37, 39, and 46 in order to clarify that which Applicant deems to be the claimed invention. Applicant respectfully submits that the amendments to the claims are supported by the originally filed application.

Applicant thanks the Examiner for the indication regarding the allowance of Claims 3, 6-9, 15, 20, 21, 27, 28, 31, 34-36, 43, 51, and 52.

The rejection of Claim 37 under 35 U.S.C. 112, second paragraph, as being indefinite is hereby traversed and reconsideration thereof is respectfully requested in view of amendments and remarks herein. Applicant has amended Claim 37 in accordance with remarks set forth in the Office Action to remove the typographical error as noted in the Office Action. In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered with withdrawn.

The rejection of Claims 1, 2, 4, 5, 10-14, 18, 19, 22-26, 29, 30, 32, 33, 38-42, and 46-50 under 35 U.S.C. § 102(e) as being unpatentable over Farmer et al (U.S. Patent No. 7,007,043, hereinafter referred to as "Farmer") is hereby traversed and reconsideration thereof is respectfully requested. Applicant respectfully submits that Claims 1, 2, 4, 5, 10-14, 18, 19, 22-26, 29, 30, 32, 33, 38-42, and 46-50, as amended herein, are patentable over the cited reference.

Claim 1, as amended herein, recites a method for providing a backup copy of data on a primary storage comprising: receiving a write request from one of a plurality of sources; journaling said write request in one of a plurality of partial journals, wherein each of said plurality of partial journals is used to journal a portion of write requests received from a different one of said plurality of sources; and updating said primary storage in accordance with said write request. Claims 2, 4, 5, and 10-14 depend from Claim 1.

Claim 18 recites a system that performs a continuous back up of data included in a primary storage unit, comprising: a switch including input ports, each of said input ports being associated with a processor and a portion of memory; a plurality of partial journals, each of said plurality of partial journals being associated with a unique one of said input ports and being stored in said portion of memory associated with said unique input port, said each partial journal including journal entries for write requests received on said unique input port; and a primary journal incorporating portions of said plurality of partial journals associated with write requests that have occurred earlier in time than those entries currently included in said partial journals. Claim 19 depends from Claim 18.

Claim 22, as amended herein, recites a method for providing a backup copy of data on a primary storage comprising: receiving, from one of a plurality of sources, a write request for a location in primary storage; receiving a copy of data at said location on said primary storage; journaling said write request in one of a plurality of partial journals in a partial journal entry including said copy prior to performing said write request, each of said plurality of partial journals being associated with journaled write requests received from a different one of said

plurality of sources; and updating said primary storage in accordance with said write request.

Claims 23-26 depend from Claim 22.

Claim 29, as amended herein, recites a computer readable medium encoded with a computer program that provides a backup copy of data on a primary storage, the computer program comprising code that: receives a write request from one of a plurality of sources; journals said write request in one of a plurality of partial journals, wherein each of said plurality of partial journals is used to journal a portion of write requests received from a different one of said plurality of sources; and updates said primary storage in accordance with said write request. Claims 30, 32, 33, and 38-42 depend from Claim 29.

Claim 46, as amended herein, recites a computer readable medium encoded with a computer program that provides a backup copy of data on a primary storage, the computer program comprising code that: receives, from one of a plurality of sources, a write request for a location in primary storage; receives a copy of data at said location on said primary storage; journals said write request in one of a plurality of partial journals in a partial journal entry including said copy prior to performing said write request, each of said plurality of partial journals being associated with journaled write requests received from a different one of said plurality of sources; and updates said primary storage in accordance with said write request. Claims 47-50 depend from Claim 46.

Farmer is directed toward a backup system that can create a number of mountable representations of past contents of a storage volume. (Col. 1, Lines 20-24; Col. 2, Lines 40-45).

Farmer discloses arrangements including a data management appliance 112 and 208. (See Figures 1 and 2). The data management appliance is programmed to behave as though it stores a number of duplicate copies of primary storage device 108 as it existed at certain points in time. (Col. 3, Lines 50-53). A number of schemes are available for providing replicated storage in a data management appliance. A Mirror in the Middle (MIM) replication scheme is disclosed in which atomic write events are recorded in a forward journal immediately so that data is always protected essentially as soon as it is created. At specified points in time, forward journal entries are used to produce snapshots recorded in a backward journal (Col. 4, Lines 13-29). Farmer also discloses a replication scheme using a self archiving log-structured volume recording every write event in a new location in primary storage. (Col. 4, Lines 32-47). Farmer discloses publishing point-in-time views of a primary storage device and making available a limited number of virtual views. (Col. 4, Lines 47-65).

Claim 1, as amended herein, is neither disclosed nor suggested by Farmer in that Farmer neither discloses nor suggests at least the features of *a method for providing a backup copy of data on a primary storage comprising: receiving a write request from one of a plurality of sources; journaling said write request in one of a plurality of partial journals, wherein each of said plurality of partial journals is used to journal a portion of write requests received from a different one of said plurality of sources ; ...*, as set forth in Claim 1.

Pages 2-3 of the Office Action state that “Farmer teaches journaling write commands requests (Col. 1, Lines 35-40) to create virtual views of the data (Col. 4, Lines 50-65). Each of the journaled write requests represent a particular view of the data at a point in time. Thus, the

Examiner maintains that Farmer teaches journaling a plurality of journals associated with write requests.”

Additionally, Page 4 of the Office Action cites Col. 1, Lines 35-40, Col. 2, Lines 55-56 and Col. 4, Lines 24-27, and Lines 50-65 as support for disclosing the claimed step of journaling of Applicant’s Claim 1. Col. 1, Lines 35-40 disclose using “some kind of journaling where write commands themselves are archived”. Col. 2, Lines 55-56 disclose journaling changes on a secondary storage device. Col. 4, Lines 24-27 disclose using forward journal entries to produce snapshots reflecting the change in the primary storage over a period of time, and recording the snapshots in a backward journal. Col. 4, Lines 50-65 describe making a limited number of virtual views “publicly available” or as publishing the point in time view.

Applicant respectfully submits that the foregoing citations of Farmer disclose journaling write events or write commands and producing snapshots reflecting the change in the primary storage over a period of time. However, Farmer does not disclose or fairly suggest receiving a write request from one of a plurality of sources and journaling the write request to a partial journal in which each partial journal is used to journal a portion of write requests received from a different one of the plurality of sources. Farmer does not disclose or fairly suggest a partial journal used to journal write requests received from a different one of the plurality of sources. Farmer appears to make no disclosure or suggestion of associating a source of a write request with a particular partial journal and journaling write requests received from a particular source in one of the partial journals.

In view of the foregoing, Applicant respectfully submits that the Farmer does not teach, disclose, or suggest at least the foregoing recited features of Claim 1. Accordingly, Claim 1, and claims that depend therefrom, are neither disclosed nor suggested by Farmer for at least these reasons.

Applicant's independent Claim 29 recites features similar to those set forth above regarding Claim 1 which are neither disclosed nor suggested by Farmer. Thus, for reasons similar to those set forth regarding Claim 1, Applicant's Claim 29, and claims that depend therefrom, are also neither disclosed nor suggested by Farmer.

Applicant's Claim 18 is neither disclosed nor suggested by Farmer in that Farmer neither discloses nor suggests at least the features of *a system that performs a continuous back up of data included in a primary storage unit, comprising: ... a plurality of partial journals, each of said plurality of partial journals being associated with a unique one of said input ports and being stored in said portion of memory associated with said unique input port, said each partial journal including journal entries for write requests received on said unique input port; ...* as set forth in Claim 18.

Page 5 of the Office Action cites Col. 1, Lines 35-40, Col. 2, Lines 55-56 and Col. 4, Lines 24-27 and Lines 50-65 as support for disclosing the claimed partial journals as set forth in Claim 18. Each of these citations is discussed above. Applicant also notes that page 5 of the Office Action does not seem to indicate where the foregoing features of Applicant's Claim 18

are disclosed in Farmer. Rather, features recited above regarding the partial journals of Applicant's Claim 18 are omitted from the Office Action when discussing where features of Claim 18 are disclosed by Farmer.

Applicant respectfully submits that Farmer does not disclose or suggest, in any of the foregoing citations or elsewhere, associating a partial journal with an input port of a switch and, including in the partial journal, journal entries for write requests received on the associated input port. Accordingly, Applicant respectfully submits that Farmer does not disclose or suggest at least the features of ***a plurality of partial journals, each of said plurality of partial journals being associated with a unique one of said input ports and being stored in said portion of memory associated with said unique input port, said each partial journal including journal entries for write requests received on said unique input port***, as recited in Claim 18. Accordingly, for at least these reasons, Claim 18, and claims that depend therefrom, are neither disclosed nor suggested by Farmer.

Applicant's amended Claim 22 is neither disclosed nor suggested by Farmer in that Farmer neither discloses nor suggests at least the features of ***a method for providing a backup copy of data on a primary storage comprising: receiving, from one of a plurality of sources, a write request for a location in primary storage; ... journaling said write request in one of a plurality of partial journals in a partial journal entry including said copy prior to performing said write request, each of said plurality of partial journals being associated with journaled write requests received from a different one of said plurality of sources ...*** as set forth in Claim 22.

The foregoing features of Applicant's Claim 22 are similar to those set forth in Claim 1 which are neither disclosed nor suggested by Farmer for reasons set forth above. Accordingly, Applicant respectfully submits that Claim 22, and claims that depend therefrom, are also neither disclosed nor suggested by Farmer.

Claim 46 recites features similar to those set forth regarding Claim 22 which are neither disclosed nor suggested by Farmer. Thus, for reasons similar to those set forth regarding Claim 1, Applicant's Claim 46, and claims that depend therefrom, are also neither disclosed nor suggested by Farmer.

Although all claims that depend from the independent claims are neither disclosed nor suggested by Farmer for at least those reasons set forth above regarding the independent claims, Applicant will also address some of the rejections with respect to those features set forth in the dependent claims.

Regarding dependent Claims 12-14 and 40-42, Page 5 of the Office Action cites to Farmer at Col. 3, Lines 30-35, Col. 5, Lines 5-25 and Col. 6, Line 57, Abstract and Claim 1 as support for disclosing the features of these dependent claims stating that in these citations, Farmer teaches each time stamp value is obtained using a phase lock loop processing technique and using actual time values. Applicant respectfully submits that Farmer appears silent

regarding any use phase lock loop processing and thus does not disclose or suggest the foregoing feature and uses thereof.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

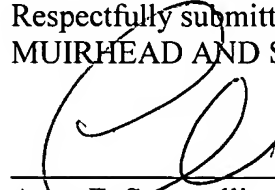
The rejection of Claims 16, 17, 44 and 45 under 35 U.S.C. § 103(a) as being unpatentable over Farmer is hereby traversed and reconsideration thereof is respectfully requested. Applicant respectfully submits that Claims 16, 17, 44 and 45 are patentable over the cited reference.

Claims 16-17 depend from Claim 1. Claims 44-45 depend from Claim 29. For reasons set forth above, Farmer neither discloses nor suggests independent Claims 1 and 29 and also neither discloses nor suggests Claims 16-17 and 44-45 that depend, respectively, therefrom.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

Based on the above, Applicant respectfully requests that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 508-898-8604.

Respectfully submitted,
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